

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

1. (currently amended) An apparatus for allocating [[a]] processing resources of a signal processor to signal processing functions in a queue waiting to be executed, which are associated with inputted signals, comprising:

a capacity determining means for determining an amount of the processor resource resources available to be assigned to the signal processing functions;

a load determining means for determining an estimate of an amount of the resource processing resources needed for each function of the signal processing functions waiting in the a queue to execute be executed;

a prioritization means for prioritizing each of the signal processing functions waiting in [[a]] the queue waiting to be executed; and

an allocating means, which received receives information from said capacity determining means, said loading means, and said prioritizing means, for allocating available resource processing resources to the signal processing functions waiting in the queue to be executed, based on a hierarchical priority scheme.

2. (currently amended) The apparatus of claim 1, wherein:

each of the signal processing functions are decomposed elements of a more complex process and do not require the same amount of resource the processor resources to execute.

3. (currently amended) The apparatus of claim 2, wherein:

multiple instances of any signal processing function within the more complex process may be invoked by the processor to can execute concurrently.

4. (currently amended) The apparatus of claim 3, wherein:

each of the signaling process functions within the more complex process is assigned a separate priority within the hierarchical priority scheme.

5. (currently amended) The apparatus of claim 4, wherein:

each instance of each signal processing function within the more complex process is assigned a separate priority within the hierarchical priority scheme.

6. (currently amended) The apparatus of claim 2, further comprising:

an assigning means, in communication with said allocation means, for assigning a resource throttling value to each function of the signal processing functions waiting in the queue to be executed, wherein the throttling value determines the a reduction of the resource processing resources allocated to each of the signal processing functions.

7. (currently amended) The apparatus of claim 1, wherein:

the allocation of the allocating available resource processing resources to the signal processing functions waiting in the queue to be executed is conducted to optimize the an amount of the assigned resource processing resources allocated to these the signal processing functions.

8. (currently amended) The apparatus of claim 1, wherein:

the allocation of the allocating available resource processing resources to the signal processing functions waiting in the queue to be executed is conducted to optimize a combined number of instances of each signal processing function being concurrently executed.

9. (currently amended) An apparatus for allocating [[a]] processing resource resources of a signal processor to signal processing functions in a queue waiting to be executed, which are associated with inputted signals, comprising:

a capacity determining means for determining an amount of the processor resource resources available to be assigned to the signal processing functions;

a load determining means for determining an estimate of an amount of the resource processing resources needed for each function of the signal processing functions waiting in the a queue to execute to be executed;

an allocating means, which receives information from said capacity determining means and said load determining means, for allocating the available resource processing resources to signal processing functions waiting in the queue to be executed, based on a hierarchical priority scheme, wherein

said load determining means calculates a product, for each of j instances, corresponding to each of said inputted signals, where j = 1 to m, and for each of k signal processing functions associated with each of said j instances, where k = 1 to N, obtained by:

(a) estimating the an amount of resource processing resource needed to support the execution of the j^{th} instance of the k^{th} signal processing function;

(b) assigning a value of either zero or one to a multiplicand associated with the j^{th} instance of the k^{th} signal processing function; and

(c) multiplying the estimated amount of processing resource needed to support the execution of the j^{th} instance of the k^{th} signal processing function by its associated multiplicand and assigning the result to the product associated with the j^{th} instance of the k^{th} signal processing function; and

said load determining means calculates a sub-total sum, for each of the j instances, obtained by:

(d) summing together the products associated with each of the k signal processing functions [[of]] associated with each of the j^{th} -instance j instances; and

(e) adding an estimate another estimated amount of the processing resource needed to support background processing associated with each of the j^{th} -instance j instances to the sum of products associated with of each of the k signal processing functions

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associated with each of the jth-instancee j instances and assigning the result to the sub-total for
each of the jth-instancee j instances.

10. (currently amended) The apparatus of claim 9, wherein:

the multiplicand value associated with the jth instance of the kth signal processing function is determined according to ~~the~~ a hierarchical priority scheme.

11. (currently amended) The apparatus of claim 9, wherein:

said load determining means repeats the steps (a) through (e), recited in ~~claim 19~~ claim 9, for each of a number of sequential time periods; and

said allocating means reallocates the available resource processing resources to the signal processing functions in each of said time periods based on a hierarchical priority scheme.

12. (currently amended) The apparatus of claim 11, wherein:

said load determining means establishes a variable length time period that is no longer than ~~the~~ a period needed to execute any one of the j instances ~~of the~~ and its associated k signal processing functions that are executing concurrently.

13. (currently amended) The apparatus of claim 11, further comprising:

for each of the j instances ~~of the~~ occurring over multiple time periods and its associated kth signal processing function, said prioritization means assigns increasingly higher priority in accordance with an increasingly greater number of time periods that have passed since the last jth instance of the kth signal processing function was last executed.